SHARP SERVICE MANUAL

CODE : 00ZOZ770SP//E

MODEL OZ-770PC ZQ-770PC

DISPLAY SECTION

ELEMENT: FSTN LCD
DISPLAY: 239 x 80 dot matrix liquid crystal display

LSI

CPU: T5L55

POWER SUPPLY

AC: × DC: ○

Main power supply: 3 VDC Alkaline batteries (LR6 (size"AA") x 2)

POWER CONSUMPTION

0.33 W

DIMENSIONS

Open: 162 (W) × 145 (D) × 10.9 (H) mm.
Closed: 162 (W) × 81.5 (D) × 19.9 (H) mm.

Weight

OZ-770/ZQ-770: 220g (including batteries)

Operating temperatures

0°C to 40°C (32° to 104°F)

Peripherals and data transfer interface

Cable jack 4-pin connector

Electronic Organizer unit section

Applications	Calendar, Schedule, To Do, Birthday/Anniversary, Telephone, Memo, Expense, Expense Report, Clock, Calculation, Conversion, Add-on	
Memory capacity	OZ-770	2.5MB Flash memory
	ZQ-770:	User area approx. 1,920KB for data storage, 320KB for Add-on programs.
Application capacity	OZ-770	20,000 entries
	ZQ-770:	(Schedule 5,000, Tel 5,000, Memo 5,000, To Do 3,000, Expense 2,000) in total
	These capacities assume the following average entry sizes.	
	Schedule:	22 characters/entry
	Tel:	8 characters/entry in the name field 10 characters/entry in number field
	Memo:	12 characters/entry in title field 18 characters/entry in body field
	To Do:	30 characters/entry in description field
	Expense:	6 characters/entry in Amount field 4 characters/entry in Payment Type field 11 characters/entry in Memo field

Maximum storage in each application: 5,000 entries

Maximum data size per entry	Approx. 2,000 bytes (including separator/terminator)
User interfaces	Keyboard
Other features	Secret function, data, transfer, search function, et al.
Functions	Addition, subtraction, multiplication, division, constant, memory calculation, conversion calculation.

Clock

Crystal oscillation frequency: 32,768 Hz

Accuracy:	Average variance per day, 2.0 seconds (at 25°C/77°F)
Display information:	year, month, day, day of the week, hours, minutes, A.M./P.M., city names
Time system:	12-hour and 24-hour
Other function:	Display of date and time for various cities around the world. Enable/disable daylight saving time.

Battery life

Battery life may vary depending on usage.

- ∗ Approx. 120 hours. Continuous display at an ambient temperature of 25°C (77°F)
- ∗ Approx. 100 hours. Searching data for 5 minutes and display on for 55 minutes per hour, at an ambient temperature of 25°C (77°F)
- ∗ Approx. 90 hours. Using the Backlight for 2 minutes per hourly use an searching for 5 minutes per hourly use at and ambient temperature of 25°C (77°F)
- ∗ Please be reminded that the old batteries in the Organizer should be exchanged with new one at least once a year.

Backlight life may vary depending on usage.
If the backlight is on for 10 minutes per day (eg. 1 minute 10 times a day), the brightness will be reduced by half after 10* years (at an ambient temperature of 25°C and 65% humidity).

- ∗ This figure may vary depending on the surrounding environment.

Accessories

Alkaline batteries LR6 (size "AA") x 2, Operation manual, Quick Start Guide, Docking module, Software CD-ROM

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

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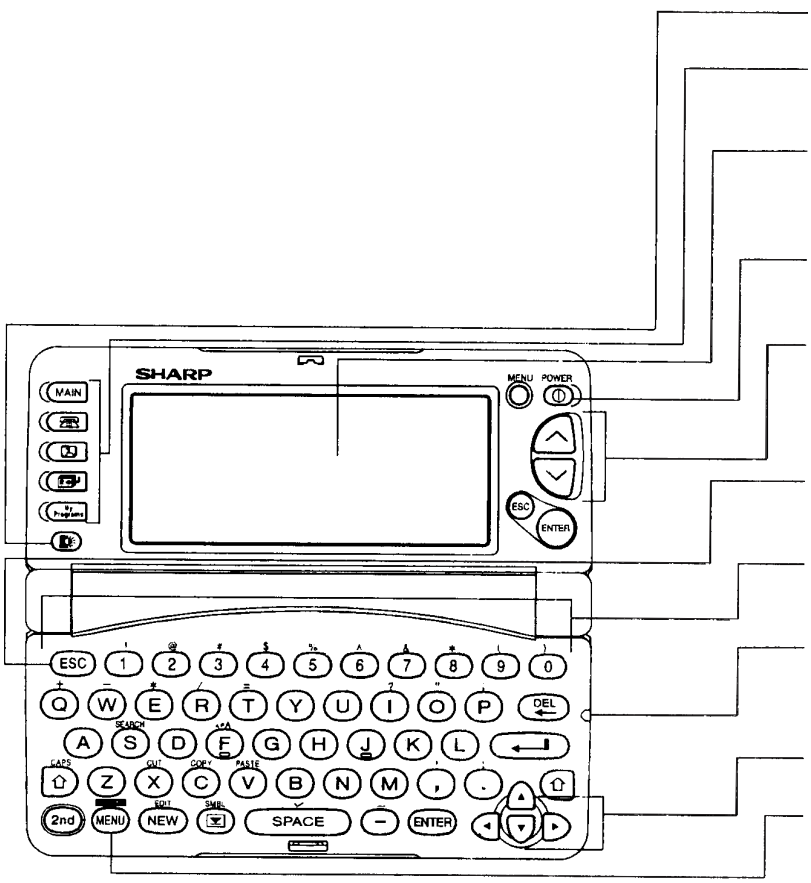
The contents are subject to change without notice.

1. KEY LAYOUT AND FUNCTIONS



Backlight key

Application keys
Starts appropriate applications

Display
Shows information, and is used for navigating the various functions

Power key
Turns on and off the unit

Page scroll keys
Quick press/release move up or down one record at a time. Allows moving up or down one screen at a time if held down for a length of time.

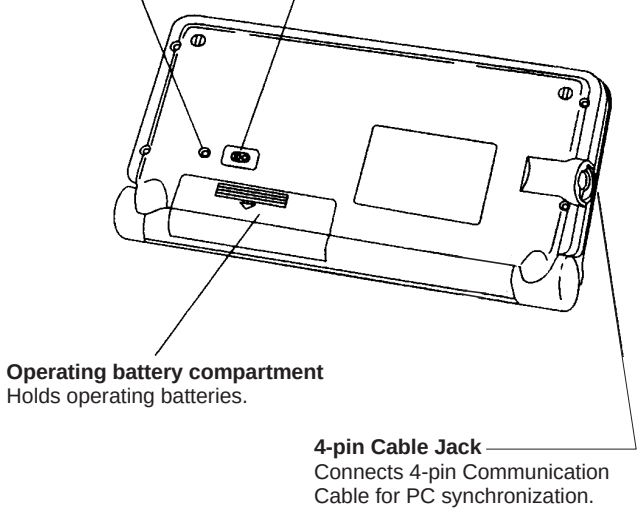
ESC key
Cancels an operation

keyboard
For entry of characters, numbers and commands

4-pin cable jack
Connects 4-pin Communication Cable for PC synchronization.

Arrow keys

Menu key
Opens the Application Menu



Reset button
Initializes and resets the Organizer.

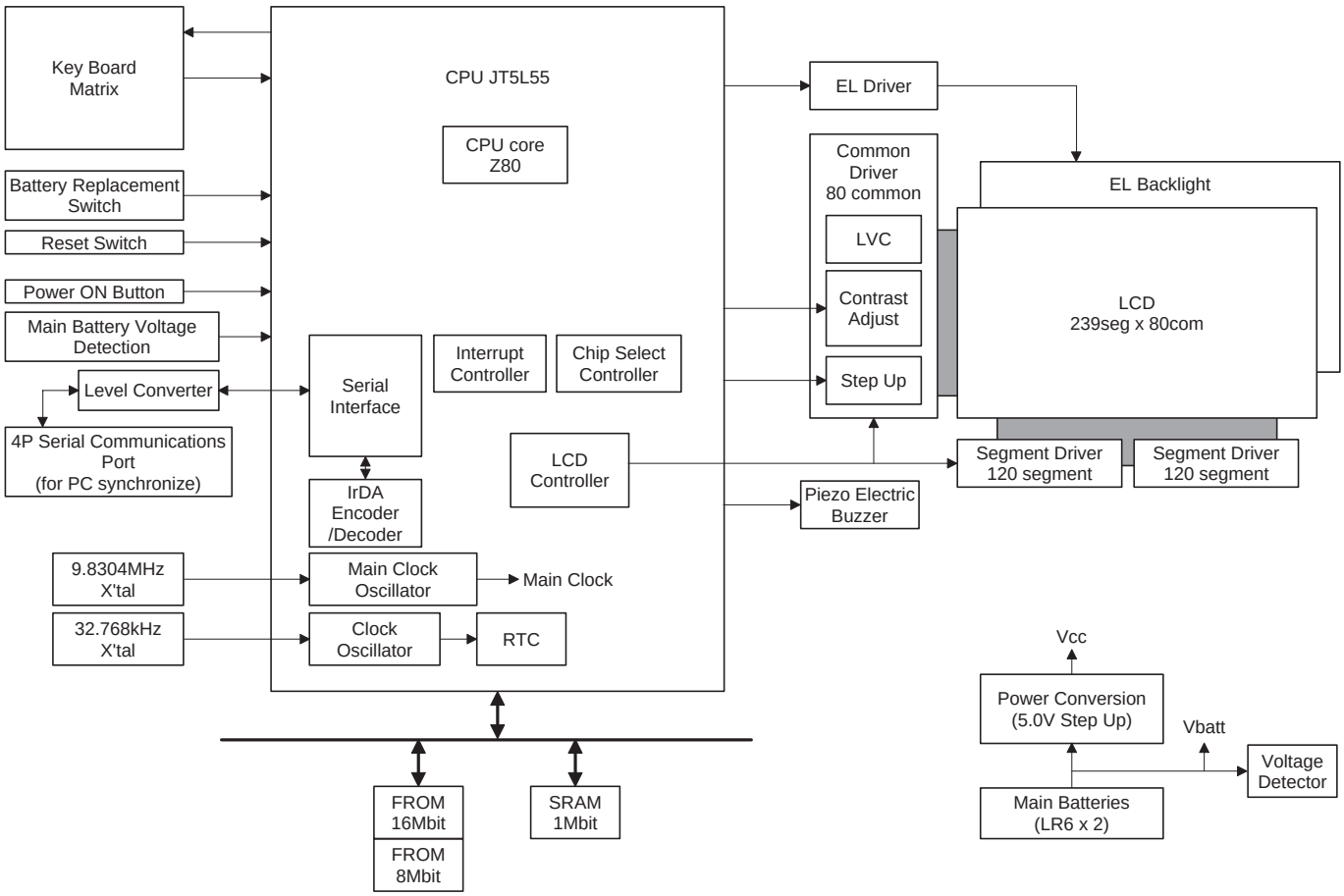
Battery replacement switch
Locks the battery compartment to prevent access to the batteries.

Operating battery compartment
Holds operating batteries.

4-pin Cable Jack
Connects 4-pin Communication Cable for PC synchronization.

2. HARDWARE DESCRIPTION

1. Block diagram



2-1. CPU (T5L55) : COB (Bare Chip) is used

1) Features

- Microcontroller T5L55 is a revised version of T6B31
- Added/revised functions of T5L55 compare to T6B31 are follows.
  1. IrDA1.0 encorder/decorder circuit is integrated.
  2. 120 segment LCD driver controller function is aclded.
  3. LCD refresh frequency is revised.
  4. Some gate circuits such as the interrupt circuit, the reset circuit and the latch circuit are added.
- The chip has 100 pads. The pad pitch is 150um, and is as same as T6B31.
- Operating voltage : VDD = +4.5 ~ +5.5V

2-2. LCD driver (JT6J14-AS) : COB (Bare Chip) is used

The JT6J14-AS is an 120-channel-output column driver for an STN dot matrix LCD. The JT6J14-AS features 28-V LCD drive voltage and a 10-MHz maximum operating frequency. The JT6J14-AS is able to drive LCD panels with a duty ratio of up to 1/160.

1) Features

- Display duty application: to 1/160
- LCD drive signal: 120
- Data transfer: 4-bit bidirectional
- Maximum Operating frequency: 10 MHz (V_{DD} = 4.5 V), 6.5 MHz (V_{DD} = 2.7 V)
- LCD drive voltage: 11 to 28 V (maximum drive voltage = 30 V)
- Power supply Operating voltage: 2.7 to 5.5 V
- Operating temperature: –20 to 75°C
- LCD drive output resistance: 2.2 kΩ (max) (12.8 V, 1/7 to 1/14 bias)
- Display-off function: When /DSPOF is L, all LCD drive outputs (O1 to O120) remain at the V_{SS}/V5 level.
- Low power consumption: Cascade connections and auto enable transfer functions are available.

2-3. LCD Driver (JT6J15-AS) : COB (Bare Chip) is used

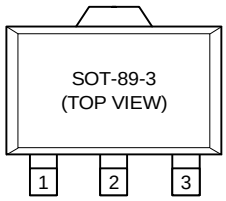
The JT6J15-AS is an 80-channel-output row driver for an STN dot matrix LCD. The JT6J15-AS features 28V-LCD drive voltage. The JT6J15-AS is able to drive LCD panels with a duty ratio of up to 1/160.

1) Features

- Display duty application: to 1/160
- LCD drive signal: 80
- Data transfer: Two different styles of 1-bit bi-directional can be selected
  ① COM 80 ← COM 1
  ② COM 80 → COM 1
- LCD drive voltage: 11 to 28 V (maximum drive voltage = 30 V)
- Operating voltage: 2.7 to 5.5 V
- Operating temperature: –20 to 75°C
- LCD drive output resistance: 1.5 kΩ (max) (Vo = 12.8 V, 1/7 to 1/14 bias)
- Display-off function: When /DSPOF is L, all LCD drive outputs (O1 to O80) remain at the V_{SS}/V5 level.
- LCD drive output timing: Change on falling edge or rising edge of LP (selected by TSW)

2-4. DC-DC conector (XC 6372A)

1) Pin Assignment



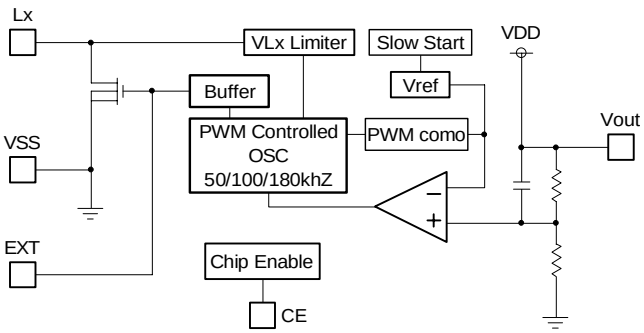
2) Pin Description

XC6372A

PIN NUMBER XC6372A	PIN NAME	FUNCTION
1	V_{SS}	GND
2	V_{OUT}	Output voltage monitor / IC internal power supply
3	L_X	Switch
—	EXT	External switch transistor drive

3) Block Diagram

XC6372A



V_{DD} is internally connected to the V_{OUT} pin.

2-5. Static RAM

1) OUTLINE

The TC551001CP is a 131,072-word x 8-bit, 5-V driven asynchronous high-speed CMOS static RAM. The power consumption is 5mA/MHz (standard) in operation and the access time is a maximum of 5ns; that is, the use of a new circuit has turned high speed and low power consumption into reality. In addition, the power consumption is only 1μA in standby state and data can be backed up by the battery.

2) Features

- Low power consumption: 27.5 mW/MHz (standard) in operation
- 5-V power supply: 5V ±10%
- Data retaining power supply voltage: 2V ~ 5.5V
- Output buffer control: $\overline{OE}$
- I/O complete TTL compatible
- Standby current (max):

	TC551001CP/CF/CFT/CTR/CST/CSR	
	–55, –70, –85	–55L, –70L, –85L
5.5V	100 μA	20 μA
3.0V	50 μA	10 μA

- Access time (max)

	TC551001CP/CF/CFT/CTR/CST/CSR		
	–55, –55L	–70, –70L	–85, –85L
Access time	55ns	70ns	85ns
$\overline{CE1}$ access time	55ns	70ns	85ns
$\overline{CE2}$ access time	55ns	70ns	85ns
$\overline{OE}$ access time	30ns	35ns	45ns

- Package

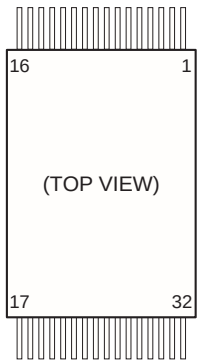
TSOP I 32-P-0820-0.50 (CFT) (Mass:0.34 standard)

3) Pin configurations

- 32 pin TSOP

(Normal bend type)

(Normal bend type)



4) Pin names

A0 ~ A16	Address input
R/W	Read/write input
$\overline{OE}$	Output enable input
$\overline{CE1}$, CE2	Chip enable input
I/O1 ~ I/O8	Data I/O
V_{DD}	Power supply terminal (+5V)
GND	Ground
N.C.	Not used

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pin name	A_{11}	A_9	A_8	A_{13}	R/W	CE2	A_{15}	V_{DD}	N.C.	A_{16}	A_{14}	A_{12}	A_7	A_6	A_5	A_4
Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Pin name	A_3	A_2	A_1	A_0	I/O1	I/O2	I/O3	GND	I/O4	I/O5	I/O6	I/O7	I/O8	$\overline{CE1}$	A_{10}	$\overline{OE}$

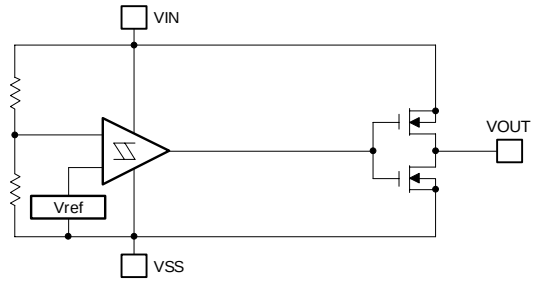
2-6. Voltage Detector

1) General description

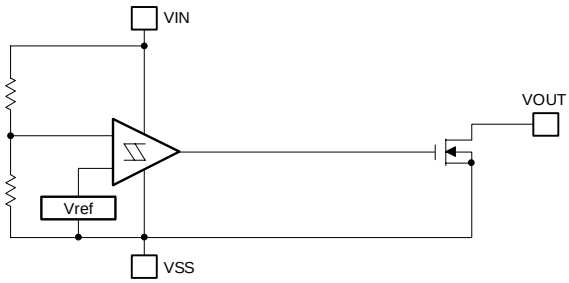
The XC61A Series is a voltage detector with high precision and low current consumption that has been achieved by using CMOS process and laser triming technology. It consists of high-precision and low current consumption reference voltage source, a comparator, hysterisis circuit, and an output driver circuit. The detection voltage attains high precision and minimun temperature drift. Two types of output circuits, N-ch open drain and CMOS, are available. All these functions in a mini-mold package attains space saving and high-density mounting, thus making it best suited to hand held or compact equipment.

2) Block diagram

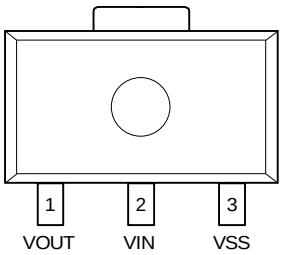
(1) CMOS output



(2) Nch open drain output



3) Pin configurations



SOT-89
(TOP VIEW)

4) Pin function

PIN	FUNCTION
V_{IN}	INPUT TERMINAL
V_{SS}	GND TERMINAL
V_{OUT}	OUTPUT TERMINAL

3. Memory mapping

CHIP SELECT	DESCRIPTION	SIZE
/CE1	FLASH ROM (PROGRAM DATA)	16Mbit
/CE3	—	—
/CE4	—	—
/CE5d, /CE RAMd	SRAM	1Mbit
/CE7	—	—
/CE8	—	—

4. Power circuit

- Explanation of the power source name

	Normal
VCC5.0V System LSI power	5.0V
V_{BAT}.Battery voltage	3.0V
GND reference voltage	0V

- Supply of the operating power (LR6 alkaline battery x 2)
  The operating voltage (main battery) of 3V (1.5V x 2) is boosted to 5.0V by a DC/DC convertor to supply the 5.0V system power (VCC).
- The 3V system power (V_{BAT}: Battery voltage) is supplied from main batteries directly.

5. Low battery detection

The main battery voltage is detected in two levels. When the voltage falls to the caution level, "BATT" symbol lights up. When the voltage falls to the fatal level, the power is forcibly turned off.

		Max.	Typ.	Min.
Main Batt.	Caution	2.10V	2.25V	2.40V
	Fatal	1.70V	1.85V	2.00V

6. Current consumption check

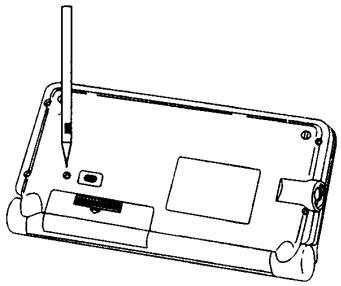
Measurement conditions
- Power voltage: Main battery
3.0V (Battery terminal)
- Checker: Do not install a checker which consumes power. (Example: 4pin checker)

Specification
- Current consumption during display of the diag menu : 12mA
- Current consumption during OFF : OZ/ZQ-770 120µA

3. NOTE FOR SERVICING

1. Resetting the Organizer

A strong impact, exposure to an electrical field, or other unusual conditions may render the unit inoperative, and pressing the keys will have no effect. If this occurs, you will have to press the RESET switch at the bottom of the unit using a pen or similar object to be able to continue to use the unit.



∗ A condition that makes the unit inoperative may erase some or all of the data stored in memory.

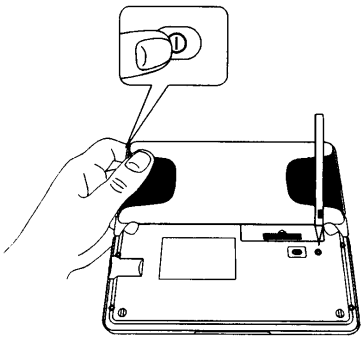
∗ Do not use anything breakable, anything with a sharp tip or anything that might break to press the RESET switch.

In case that the Organizer does not work properly after reset, you can remove the batteries and insert the batteries several seconds later. Then press [ф] to open the Organizer.

1-1. All reset opeation

If the unit still fails to function after it has been reset using the procedure above, you will have to reset it using a slightly more complicated procedure:

1. While pressing and holding [ф], press and release the RESET switch.



   A message appears.
2. Release [ф].
3. Press [ESC].

The built-in clock is reset.

∗ Do not press [ENTER] in step 3. Doing so will delete all data in the unit.

2. Battery Replacement

2-1. General guidelines

The Organizer uses the following type of battery:

Use	Type	Size/Model	Qty
General operation	Alkaline batteries	LR6 (size "AA")	2

There are some extremely important points to remember when installing new batteries:

Replace the two operating batteries at the same time with new batteries of the same type.

Caution:

∗ Keep batteries out of the reach of children.

∗ Remove batteries from the unit when they become weak or when the unit will not be used for a long period of time.Leaving weak batteries in the unit may cause battery leakage and damage from corrosion.

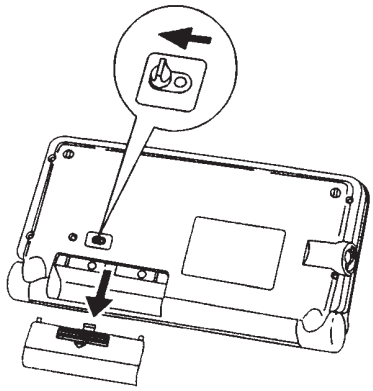
∗ Do not dispose of batteries in fire as they may explode.

2-2. Replacing the operating batteries

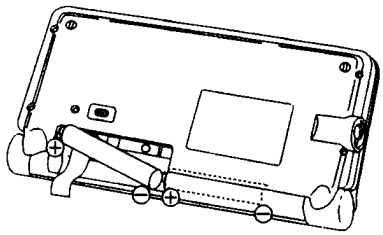
The Organizer detects two low battery levels which are warning and fail. When the battery is in warning level, an alert message appears on the screen. In fatal level, the Organizer will turn off automatically without indication.

If the alert message is shown, replace the batteries immediately.

1. Turn off the Organizer.
2. Set the battery replacement switch on the bottom of the Organizer to REPLACE BATTERIES (a red dot will appear).
3. Slide off the operating batteries cover.



4. Remove the old batteries by pulling the ribbon tab.
5. Insert the two new batteries on top of the ribbon tab, taking care to position them correctly according to the plus (+) and minus (-) terminals, as shown below.



6. Replace the cover.
7. Set the battery replacement switch to NORMAL OPERATION.
8. Turn on the Organizer and set the clock.

If nothing happens when you press [ф] :

∗ Setting the battery replacement switch to REPLACE BATTERIES shuts off power to the unit. Check that the battery replacement switch is set to NORMAL OPERATION.

∗ Repeat the above battery replacement procedure step by step.

3. Using the data transfer function

Your Organizer is a powerful pocketsize computer with built-in functions that make it possible to accomplish a broad range of tasks. It has the flexibility to connect to other Organizers and transfer data to desktop computers using data transfer facilities, which are accessed through the application menu. This chapter provides descriptions and examples to get you up and running quickly with these powerful features.

Exchanging Information with a Personal Computer

Using included Organizer Link software (Day-Timer Organizer® SHARP Edition) and cable (Docking Module), you can exchange data with a personal computer. This makes it possible, for example, to use the unit when outside your home or office, then later transfer the data you have entered on the Organizer to your desktop computer.

To setup the Organizer for use with the Organizer Link:

1. Make sure the unit is turned off.
2. For PC Interface cable transfer, plug the Organizer into the Docking Module. (See the "Quick Start Guide" for details.)
3. Plug the cable into the jack on the OZ/ZQ-770 and into the PC's serial port (e.g. COM1)
4. Turn on OZ/ZQ-770, press [2nd] [MENU] to activate the PC-LINK.

Your Organizer is now ready to transfer data. Consult the Day-timer Organizer® SHARP Edition HELP file regarding subsequent transfer procedures.

Press [⏻] at any time to exit the PC-Link mode. If you leave the Organizer in PC Link mode, more power is consumed from the batteries than usual, and the auto power off function does not work.

To conserve battery power, always press [⏻] to leave the PC Link mode as soon as you have finished transferring data.

4. Concerning the internal user FLASH-ROM data.

In the OZ/ZQ-700 series, all of the registered user's data is stored in the FLASH-ROM memory, and is therefore stored even if there is no power supplied to the machine.

However, the FLASH-ROM memory is cleared during the following operations, and caution should be exercised concerning data storage management.

(Operations which will erase the user data storage memory)

1) When the ALL RESET function is carried out.
2) When the following functions are carried out from the Diag Check.
   (1) "5. FINAL check" (page 1/5)
   (2) "5. AGING" (page 2/5)
   (3) "1. FLASH ROM CLEAR" (page 5/5)

5. FLASH ROM SERVICE WRITING/CHECKING PROCEDURES

The procedures are for writing into the FLASH ROM is the OZ/ZQ-700 series.
Servicing for the OZ/ZQ-700 series is performed in the following cases:

1) When the Main PWB unit is replaced.
2) When the FLASH ROM is replaced.
3) When the following functions are carried out from the Diag Check.
   (1) "5. FINAL check" (page 1/5)
   (2) "5. AGING" (page 2/5)
   (3) "1. FLASH ROM CLEAR" (page 5/5)

1) Necessary devices

1. PC (Windows 95/98 or Windows NT 4.0)
2. Docking module
3. RE-PROGRAM software for PC (EO8RPRxxxx.exe)
   "xxx" shows the version number. The software on the machine side is included in this software.

   When the version of the software on the machine side is upgraded, this software is also upgraded.

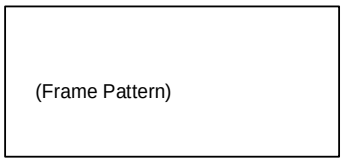
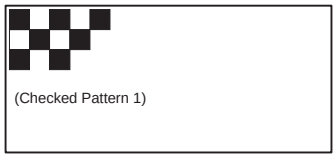
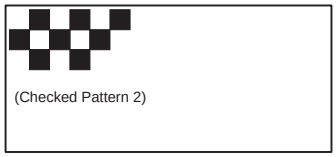
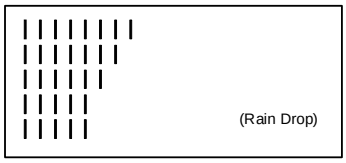
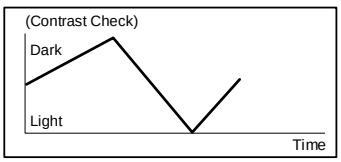
2) Operating procedure

1. Connect the machine and the PC's COM port with the docking module.
2. Copy the RE-PROGRAM software (EO8RPRxxxx.exe) for PC into a directory in the HDD.
3. Start the program copied in procedure 3.
4. If necessary, set the COM port for PC software. (It is normally operated when detected.)
5. Select [ON]-[2nd]-[MAIN] to bring the machine into the PC-Link mode.
6. Press the Update button of the program to start RE-PROGRAM.
   PC side: The window indicating the progress status is shown.
   Machine side: A beep sounds and the machine enters the PC-Link mode to be ready for reception. The display shows;
   Now updating!
   Please waitc
7. Re-program is completed in about 6 min.
   PC side: "The system update was successful." is displayed.
   Machine side: A beep keeps sounding periodically. The display shows;
   Re Program
   Ok
8. Press the OK button on the PC message to complete the program.
9. While pressing [ESC] and [D] on the machine side, press the Reset button and release [ESC] and [D] to enter the diag. mode. Check the machine model name, the ROM version, and the check sum. The checking procedures are as follows:
   1) Model name, ROM version
      Check the right lower section of the first page (Page 1 of 5) of the diag. menu.
      Ex. Model: EO-8
      Page 1 of 5
      ROM Ver. V1.1
   2) Check sum
      Press [V] key once in the first page (Page 1 of 5) of the diag. menu to go to the second page of the diag. menu (page 2 of 5). Press [2] and select "ROM CHECK." After completion, a beep sounds.
      If the check sum is OK, the check sum and "ROM CHECK OK" are displayed on the display after completion. After that, check the check sum value. In case of an error, two different check sum values and "ROM CHECK FAIL" are displayed.
      Perform the check procedure again.
10. After completion of the above, keep pressing [POWER] key and press the reset key. The display of initializing execution check is shown. Press [ENTER] key to initialize the machine.

[Note]

- If the check is failed, perform the following procedure instead of procedure 5.
  While pressing [SHIFT] + [R], press [RESET] to bring the machine into the PROGRAM mode and perform procedures 3 and later again.
- If necessary, back up the data before RE-PROGRAM, and restore them after completion of RE=PROGRAM.

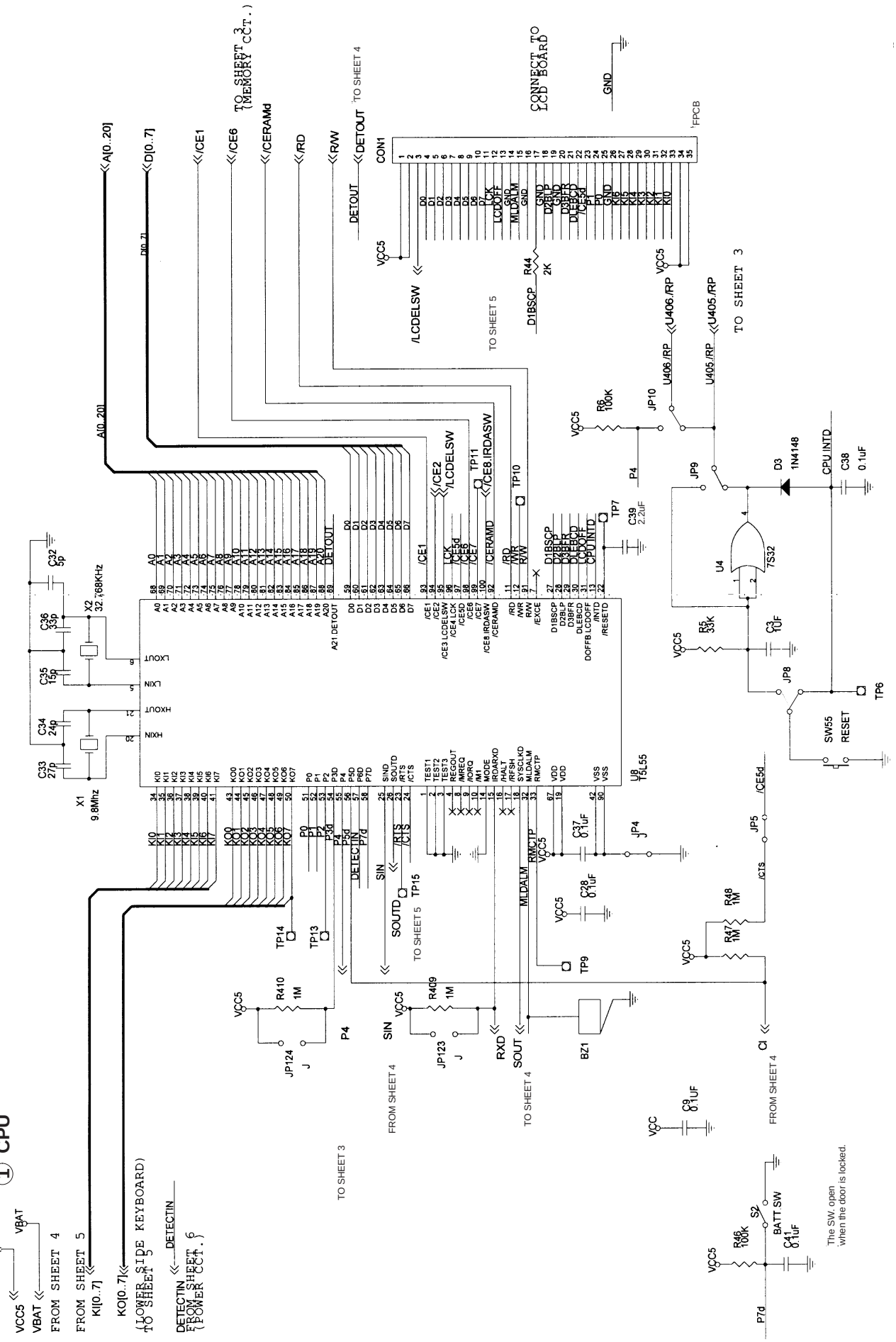
4. EXPLANATION OF DIAGNOSTICS AND CHECK ITEMS

NO.	CHECK ITEM	CHECK METHOD	DISPLAY	CRITERIA or NOTE
1	Start	Power SW ON Reset while Pressing ESC+D	(Diag Menu, Page 1 of 5) 1. LCD CHECK 2. PCB CHECK 3. KEY CHECK 4. BACKLIGHT CHECK 5. FINAL CHECK 6. LOW BATT. CHECK 7. H SEND CHECK 8. UART ECHO CHECK ROM Ver. Vx,x	
2	LCD Check	Push 1 key		Displayed Frame Pattern
		Push ENTER key		Displayed Checked Pattern 1
		Push ENTER key		Displayed Checked Pattern 2
		Push ENTER key		Displayed Rain Drop Pattern 2 No Rain Drop
		Push ENTER key		Contrast changes smoothly to black out, fades out, then returns to the initial level.
3	PCB Check	Push ‘2’ key Push ENTER	SRAM CHECK..... ROM CHECK..... ALARM TONE TEST.....	Test OK should be seen, or a error alarm tone would be heard.,
4	KEY Check	Push ‘3’ key Push all key	45 (hex) different characters and the no. of keys are displayed.	When push a key, one of corresponding characters will be disappeared and the no. of key will be decrement by one. Keyboard will be OK only if all characters had been disappeared after all keys had been pressed.
5	Backlight check	Push ‘4’ key	BackLight is on & no indication	on time...30sec
6	Low Battery Check	Push ‘6’ key Drop the operating Volt. 2.5V Drop the operating Volt. 2.1V Drop the operating Volt. 1.7V	LOW BATTERY CHECK LOW BATTERY CHECK (no change) CAUTION! IT IS LOW BATTERY. FATAL WARNING. IT IS NO BATTERY	
7	H Send Check	Connect the OZ/ZQ-700 series unit to PC Push ‘7’	HHHHH..... HHHHH..... : :	Press CANCEL to exit Check ‘H’ displaying to PC Monitor
8	Uart Echo Check	Connect the OZ/ZQ-700 series unit to PC & run rest Cradle PC program.	UART CHECKING..... Press CANCEL to quit	Test OK should be seen.

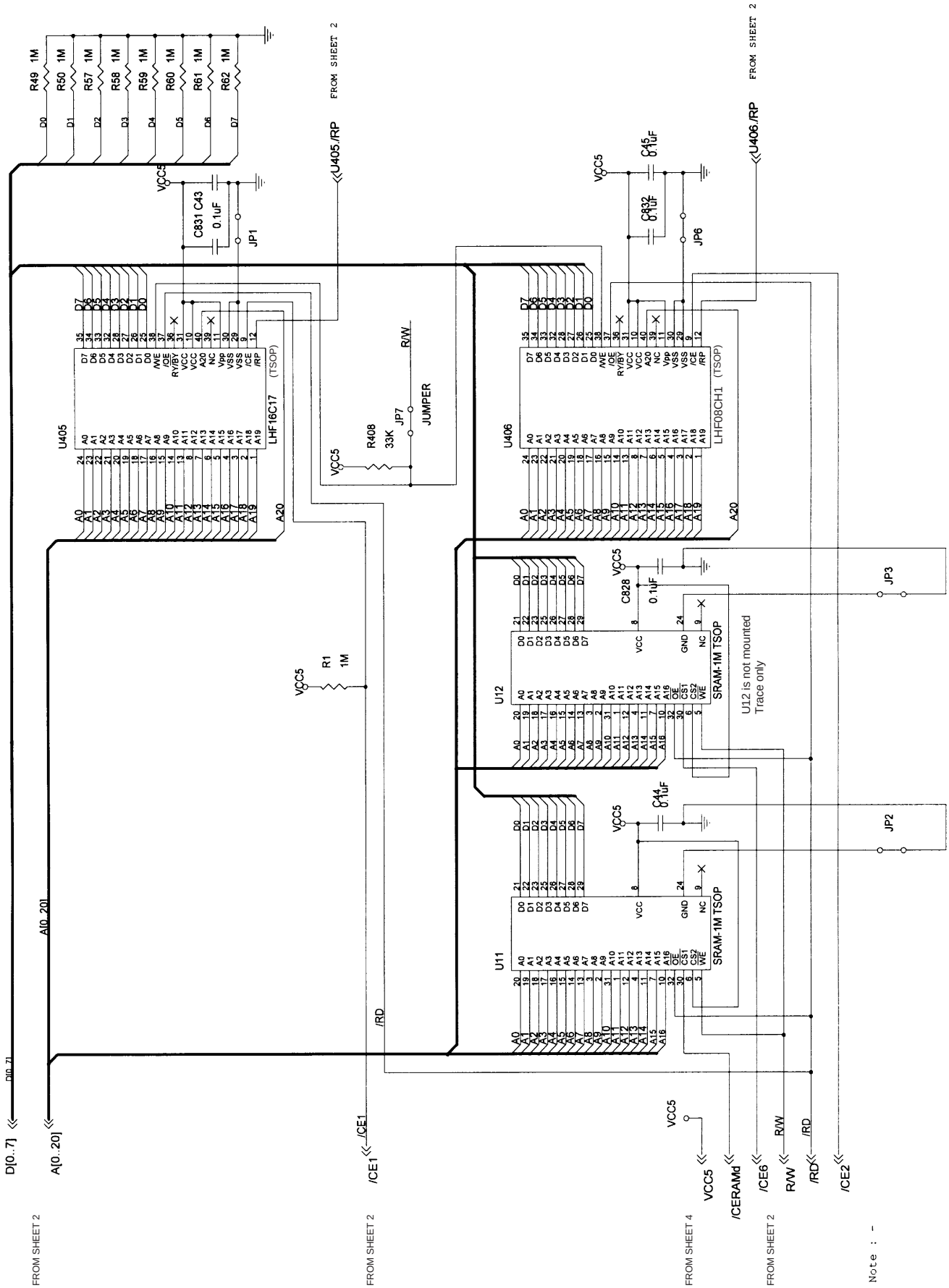
5. CIRCUIT DIAGRAM AND PARTS LAYOUT

(1) Main PWB Circuit

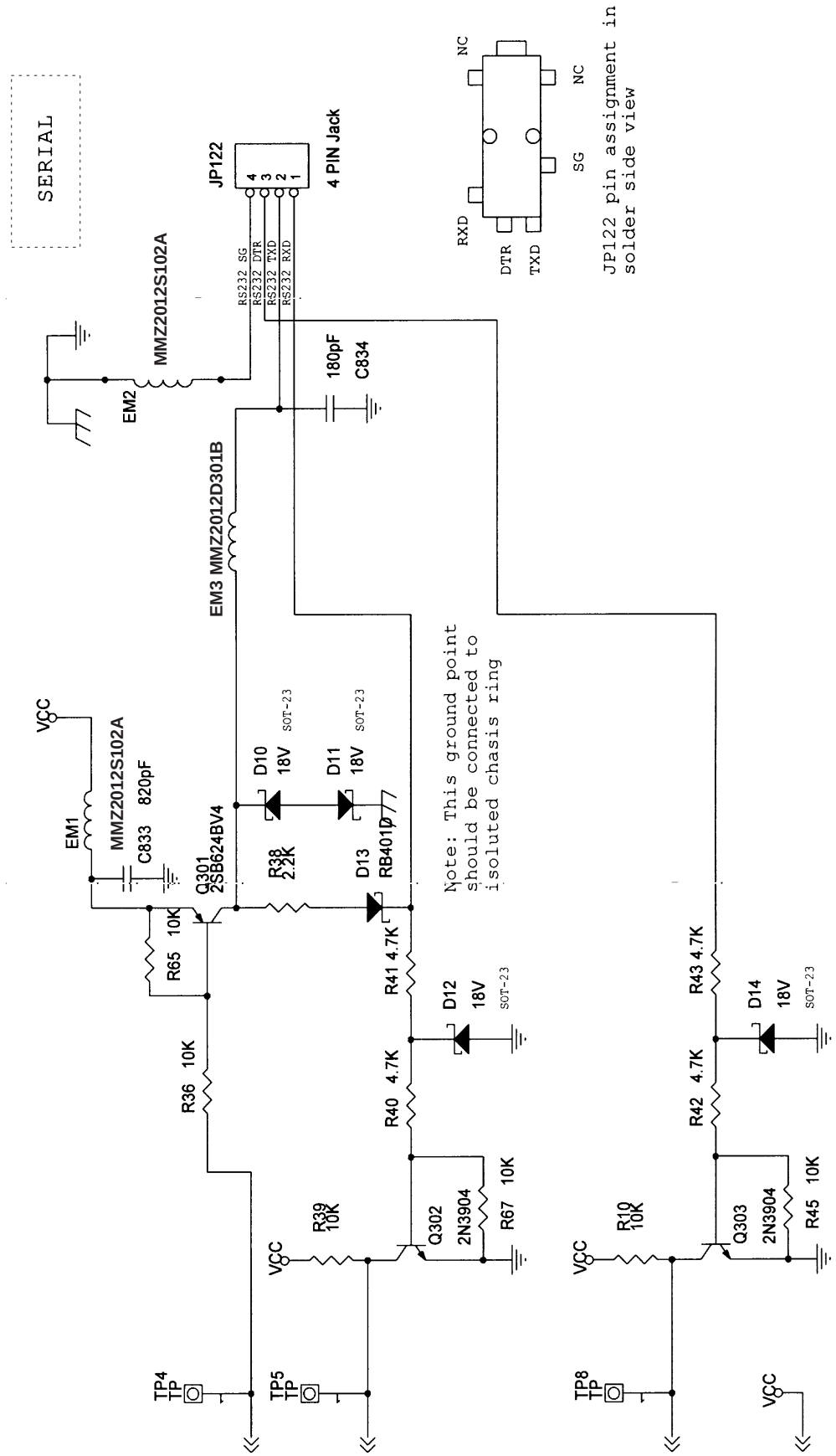
① CPU



② Memory

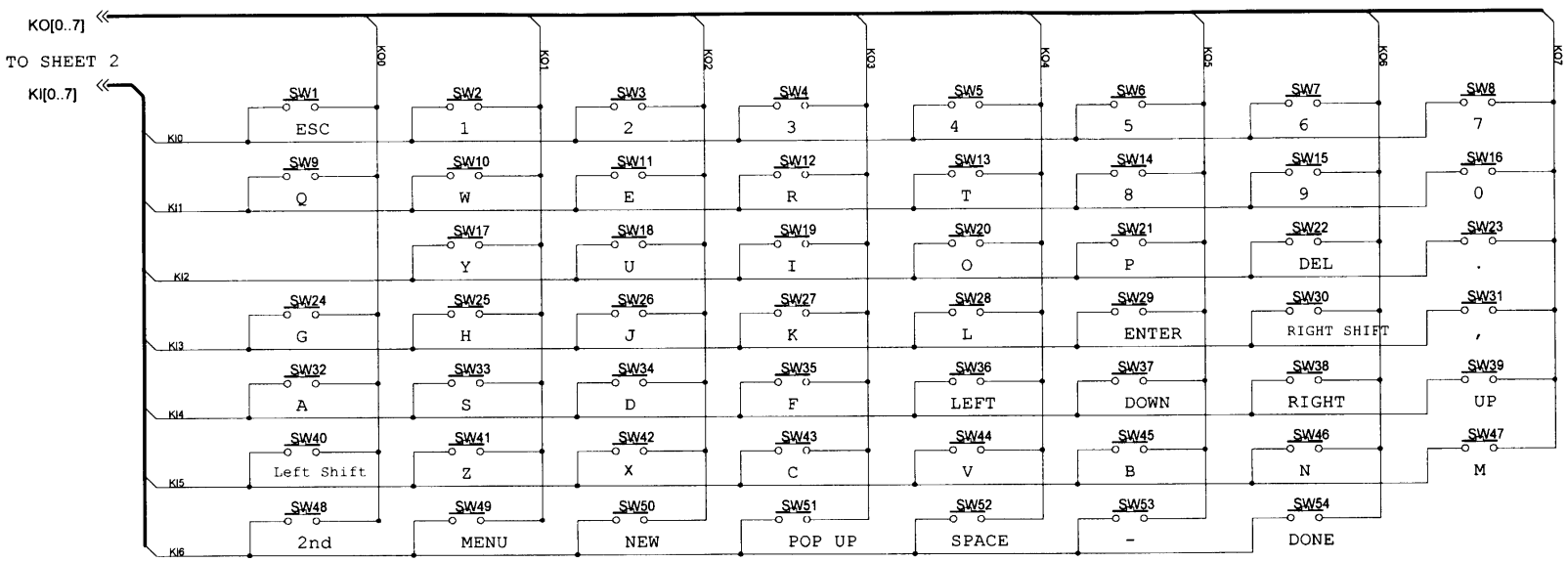

R49 1M
R50 1M
R57 1M
R58 1M
R59 1M
R60 1M
R61 1M
R62 1M
VCC5
C831 C43
0.1uF
JP1
U405
LHF16C17 (TSOP)
U406
LHF08CH1 (TSOP)
R408
33K
JP7
JUMPER
R/W
R1
1M
C828
C832
C45
JP6
JP3
JP2
U12
U11
SRAM-1M TSOP
U12 is not mounted
Trace only
A[0..20]
D[0..7]
/CE1
/RD
/CERAMd
/CE6
/CE2
FROM SHEET 2
FROM SHEET 4
Note : -

③ 4pin

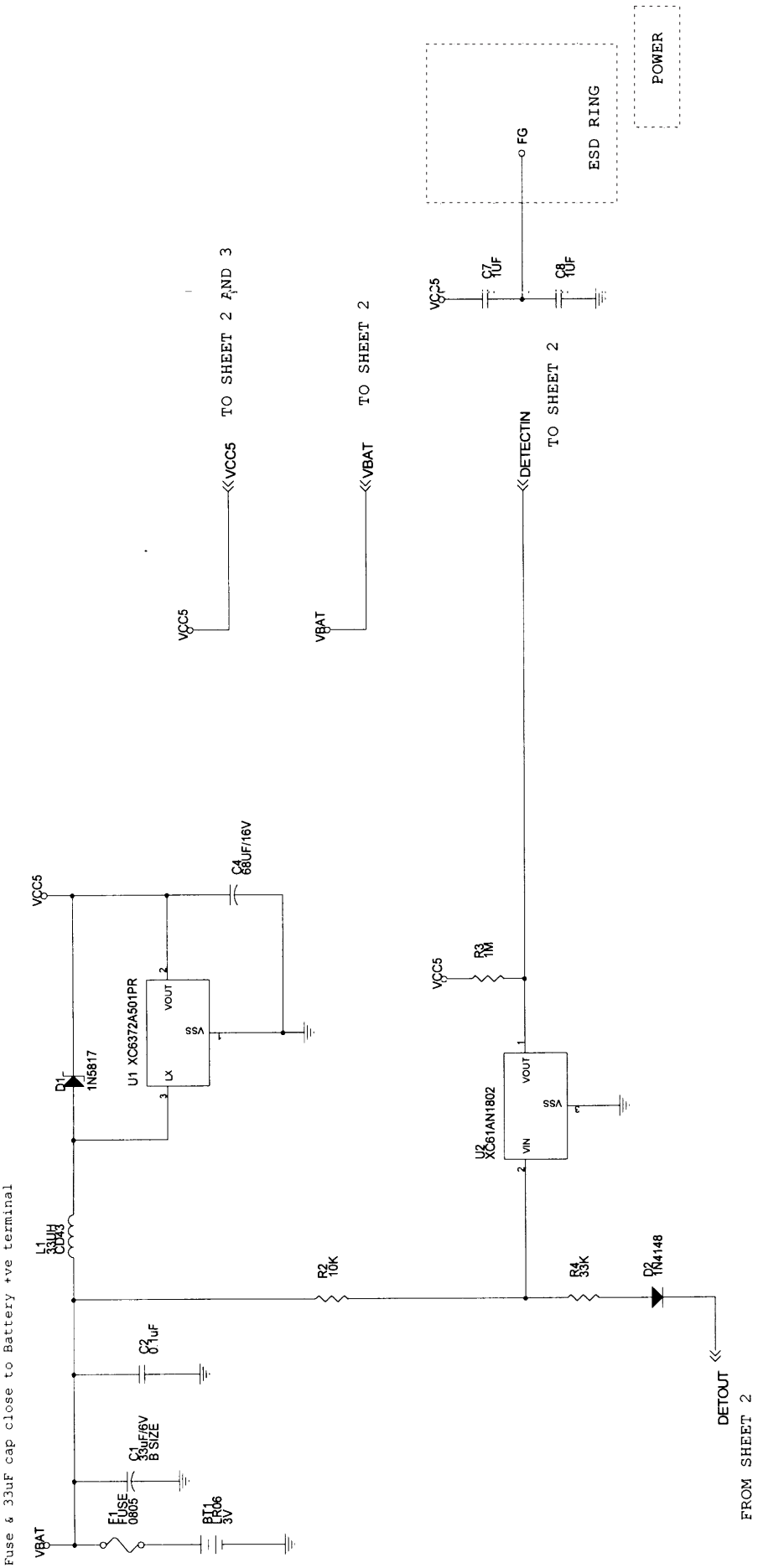

SERIAL
JP122
4 PIN Jack
RS232 SG
RS232 DTR
RS232 TXD
RS232 RXD
EM2
MMZ2012S102A
180pF
C834
EM3 MMZ2012D301B
VCC
EM1
MMZ2012S102A
C833 820pF
Q301
2SB624BV4
R38 2.2K
D10 18V SOT-23
D11 18V SOT-23
D13 RB401D
R65 10K
R36 10K
R41 4.7K
D12 18V SOT-23
R40 4.7K
R39 10K
Q302
2N3904
R67 10K
R43 4.7K
D14 18V SOT-23
R42 4.7K
R10 10K
Q303
2N3904
R45 10K
TP4
TP5
TP8
SOUT
SIN
CI
VCC5
Note: This ground point should be connected to isoluted chasis ring
JP122 pin assignment in solder side view
NC
RXD
SG
DTR
TXD

④ Key

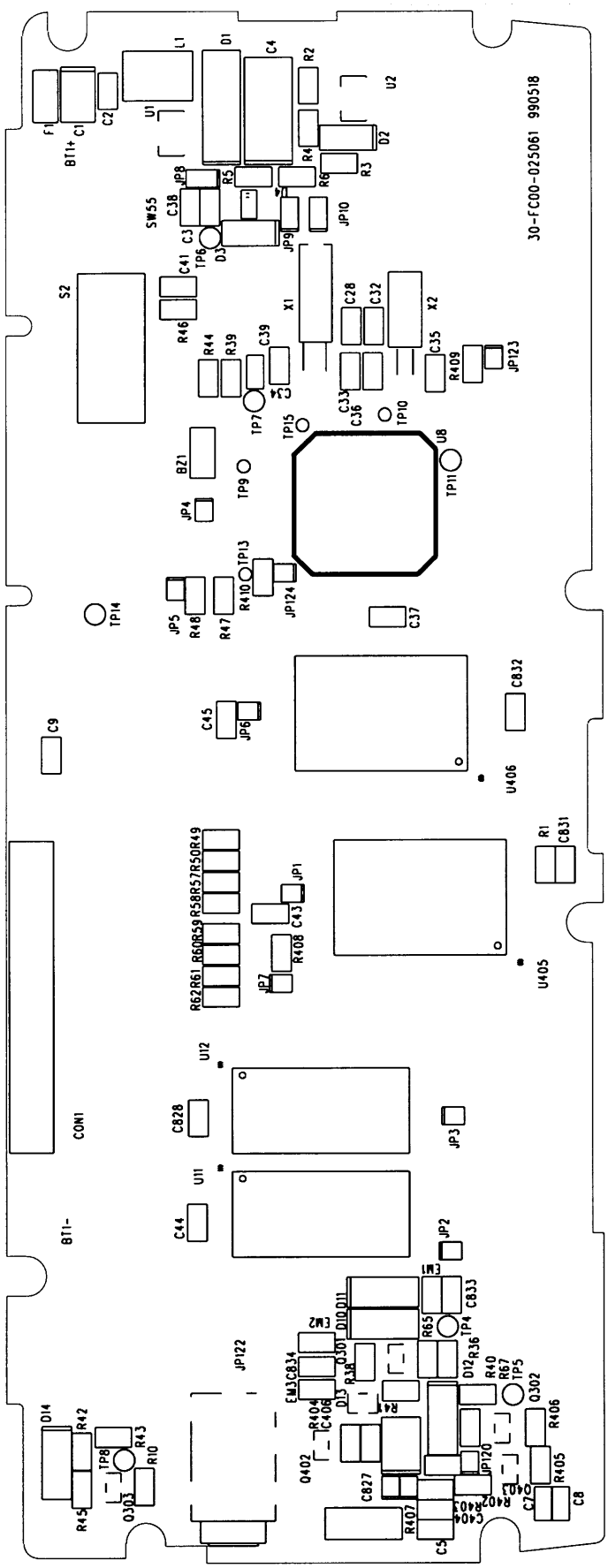
KEYBOARD



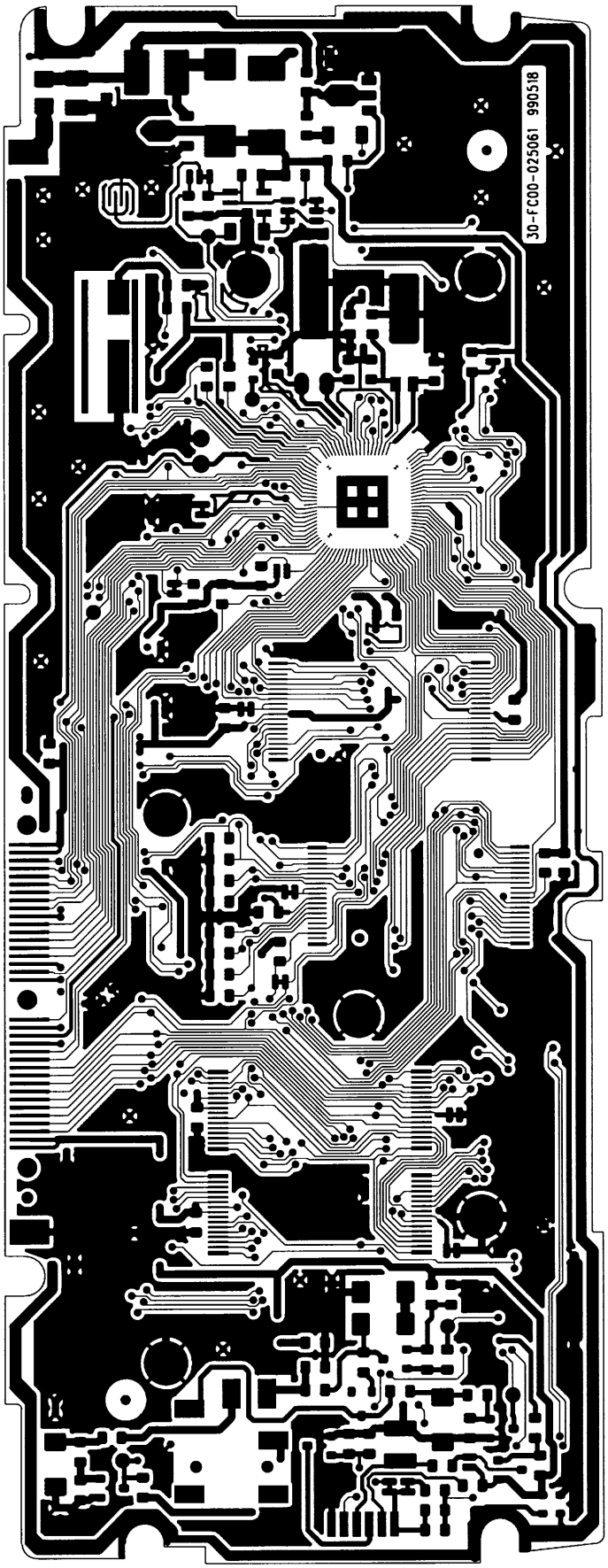
⑤ Power


Fuse & 33uF cap close to Battery +ve terminal
VBAT
F1 FUSE 0805
BT1 LR06 3V
C3 33uF/6V B SIZE
C2 0.1uF
L1 33uH
D1 1N5817
U1 XC6372A501PR
VOUT
VSS
LX
C4 68UF/16V
VCC5
R2 10K
R3 1M
U2 XC61AN1802
VOUT
VSS
VIN
R4 33K
D2 1N4148
DETECTIN
DETOUT
FROM SHEET 2
TO SHEET 2
VCC5
VBAT
TO SHEET 2 AND 3
TO SHEET 2
C7 10UF
C8 10UF
FG
ESD RING
POWER

(2) Main PWB parts layout

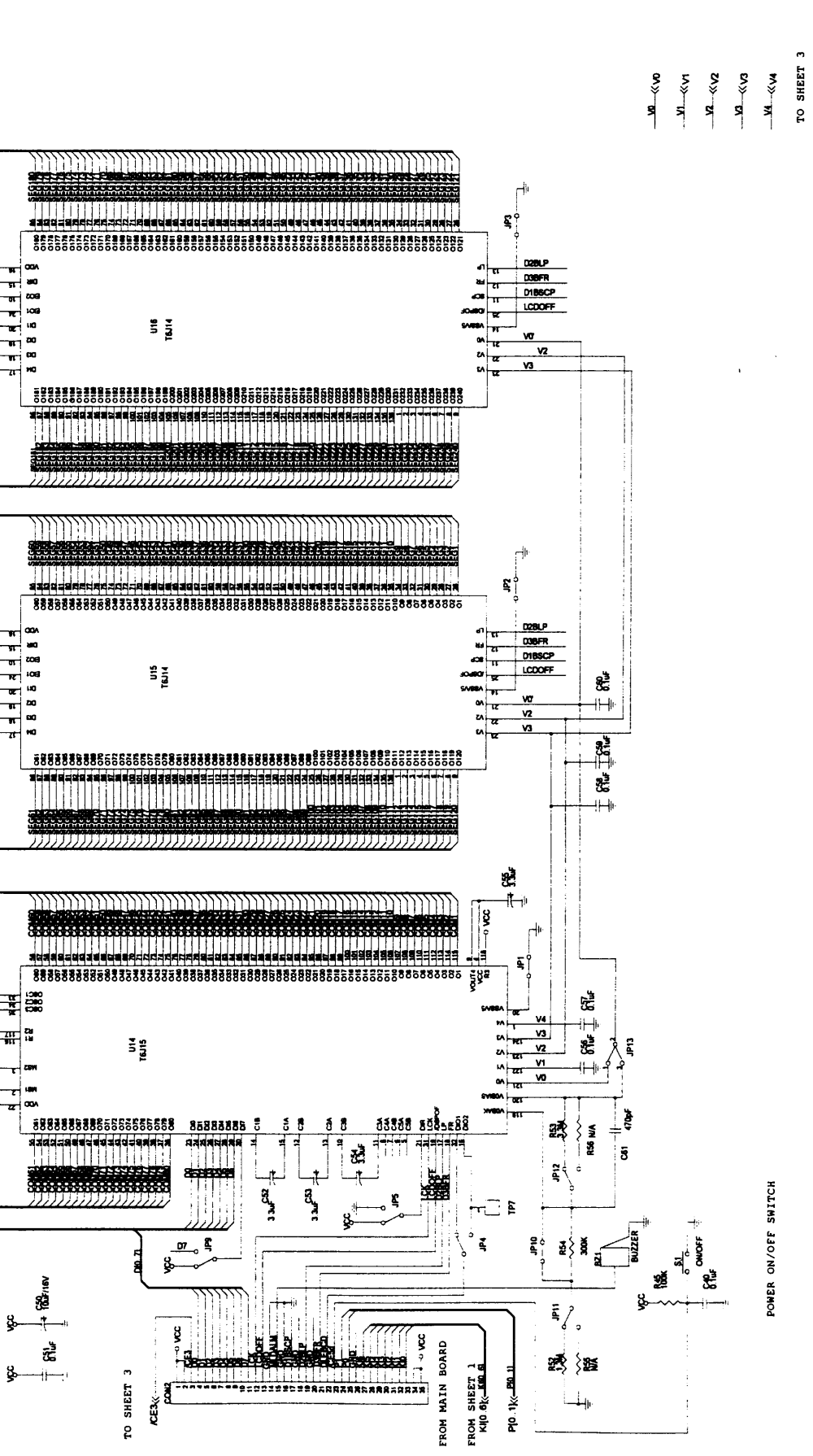


(3) Main PWB pattern layout

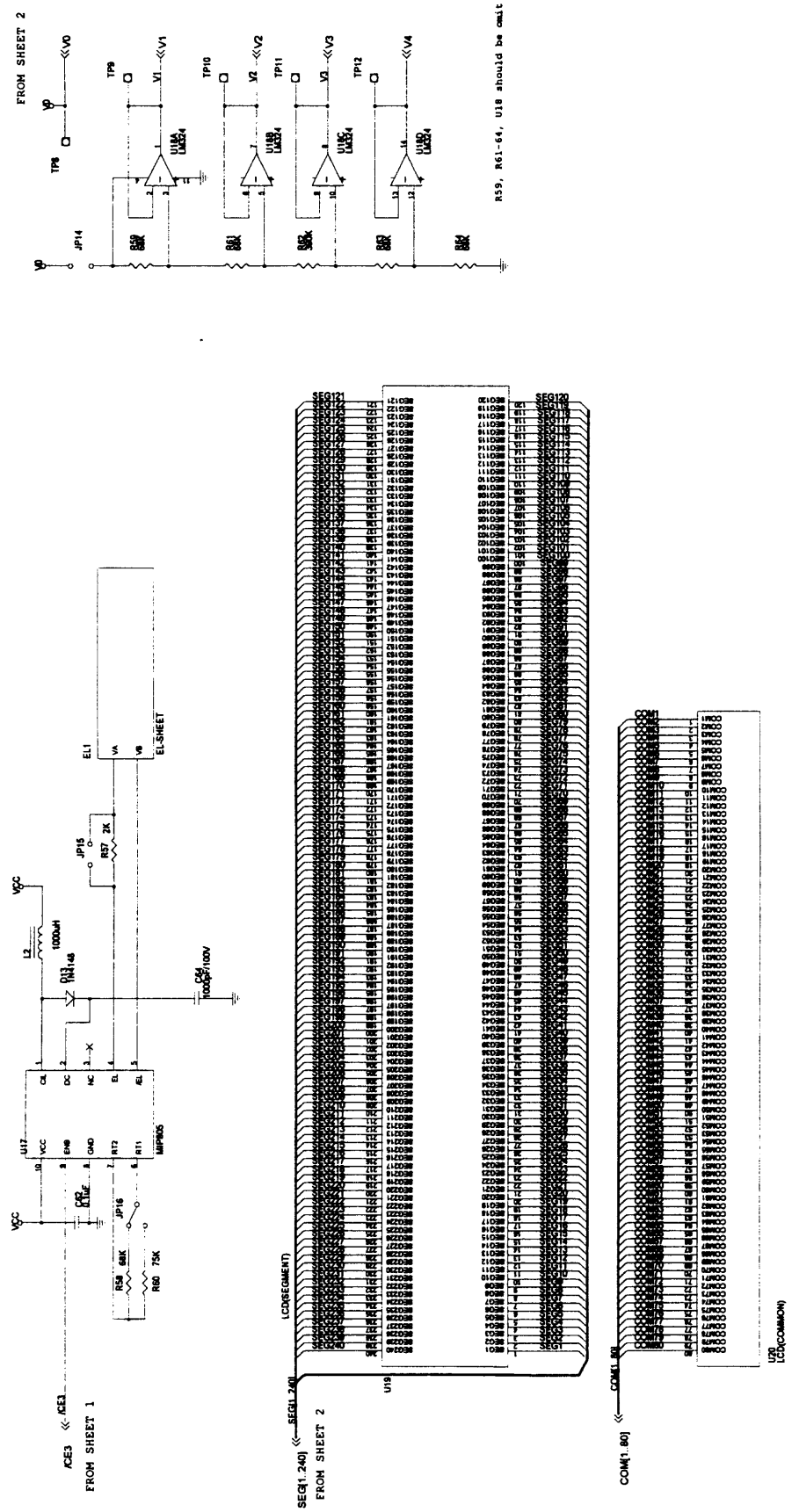


(4) LCD PWB Circuit

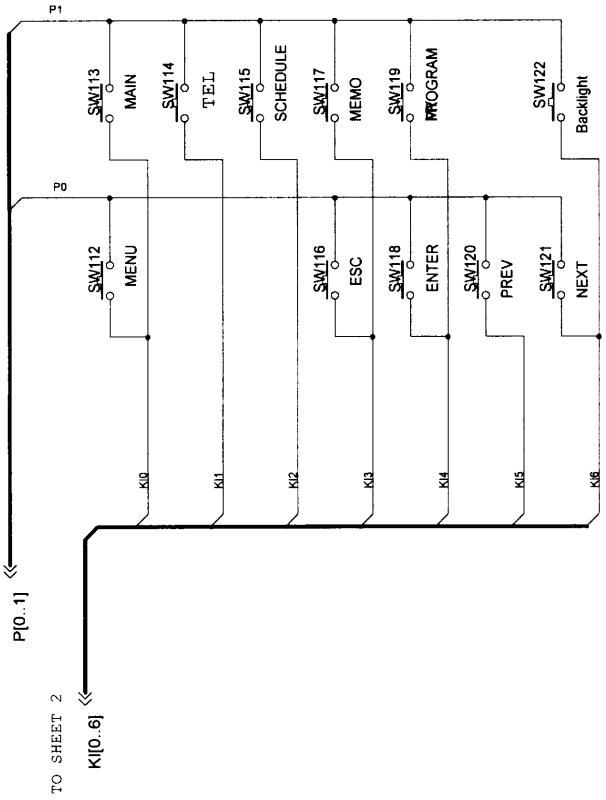
① LCD driver



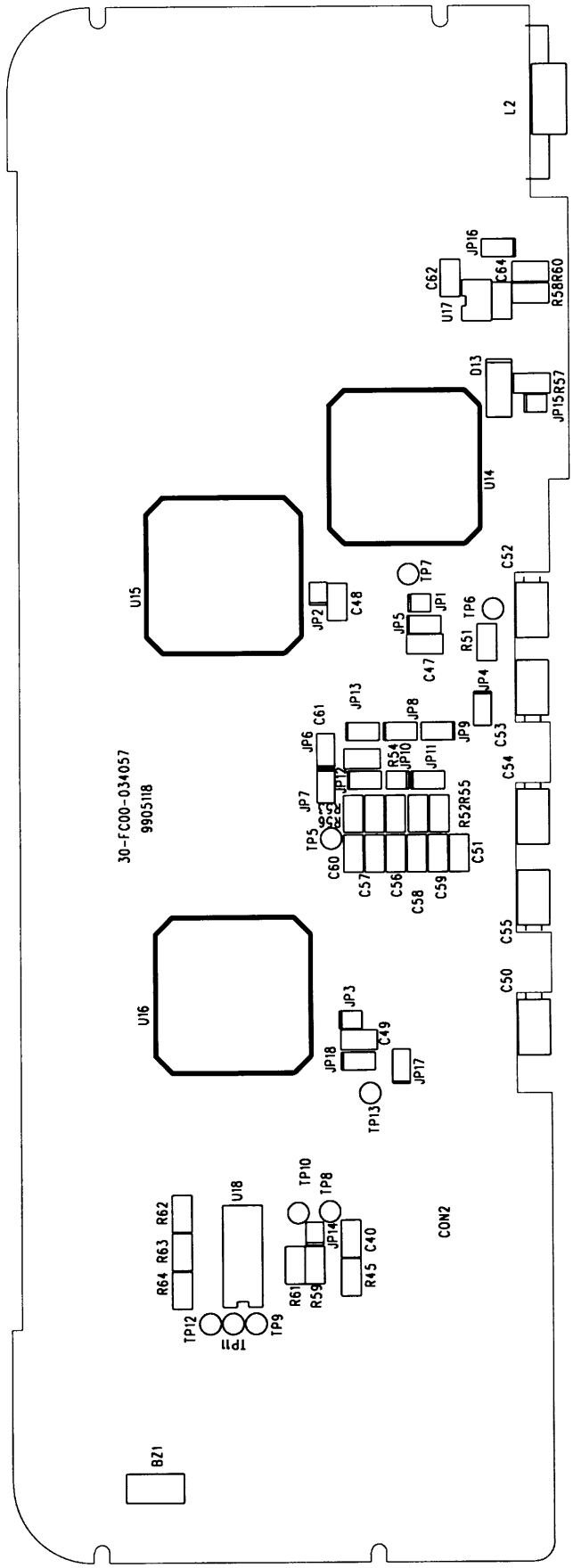
② EL power


FROM SHEET 2
TP8
TP9
TP10
TP11
TP12
JP14
R59, R61-64, U18 should be omit
FROM SHEET 1
JP15
JP16
R57 2K
R58 68K
R60 75K
EL1
EL-SHEET
1000uH
LCD(SEGMENT)
SEG121
SEG120
SEG(1..240)
U19
COM(1..80)
U20
LCD(COMMON)

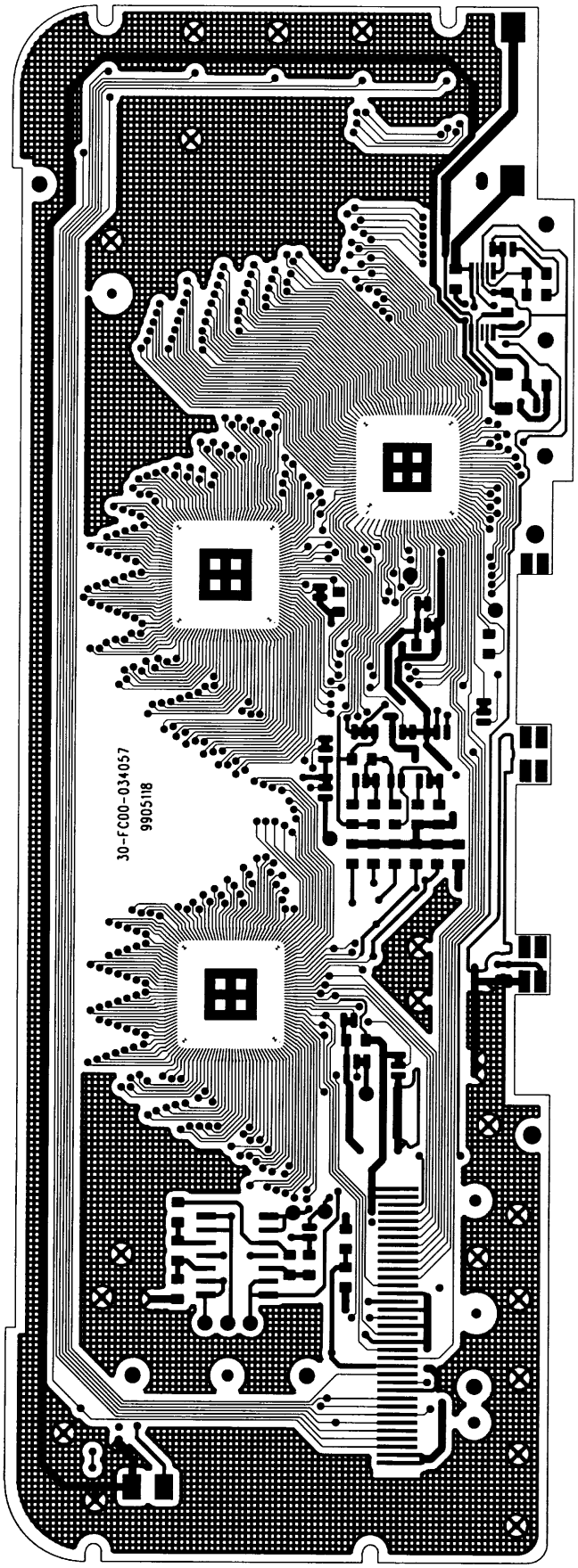
③ Key


P1
P0
SW113
MAIN
SW114
TEL
SW115
SCHEDULE
SW117
MEMO
SW119
PROGRAM
SW122
Backlight
SW112
MENU
SW116
ESC
SW118
ENTER
SW120
PREV
SW121
NEXT
KI0
KI1
KI2
KI3
KI4
KI5
KI6
P[0..1]
K[0..6]
TO SHEET 2

(5) LCD PWB parts layout



(6) LCD PWB pattern layout



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